

REMARKS

Claims 1-71 are pending in the present application. Claims 14, 16, 19, 26, 30, 33, 38, 49 and 50 have been amended herein. No new matter has been added.

The Examiner objected to claim 19 as being in improper dependent form for failing to further limit the subject matter of a previous claim. Claim 19 has been amended to correct the dependency of the claim.

The Examiner objected to claim 38 because of a typographical error. Claim 38 has been amended to correct the typographical error.

The Examiner objected to claims 49-57 because of an inconsistency between the claim group and other claim groups. Claims 49 and 50 have been amended to correct the inconsistency.

The Examiner rejected claims 1-10, 38-40, 49-52, 55-56, 58-59, and 65-66 under 35 U.S.C § 102(e) as being anticipated by U.S. Patent No. 6,226,689 ("Shah"). Applicants respectfully submit that claim 1-10, 38-40, 49-52, 55-56, 58-59, and 65-66 are patentable over the art of record for the following reasons.

Independent claim 1 recites:

A method in a computer system for servicing requests from one or more client computers, the method comprising:
 receiving a request from a client computer;
 a first thread processing the request by invoking a receive handler that creates a work item, wherein the first thread is part of a pool of generic threads;
 a second thread performing a task specified in the work item by invoking a work handler, wherein the second thread is part of the pool of generic threads;
 receiving a result of performing the task; and
 a third thread returning at least a portion of the result to the client computer by invoking a reply handler, wherein the third thread is part of the pool of generic threads.

Shah teaches a method for interprocess communication between a thread of a client application and a thread of a server application (Shah, Abstract). A client thread sends a request to a server listening thread, and the server listening thread places the request in a message queue associated with the server thread (Id.). The request is received at the server thread and dispatched to a remote procedure for processing (Id.). Reply data received back

from the remote procedure is sent to a client listening thread, and the client listening thread notifies the client thread when the reply is received and gives the reply to the client thread (id.).

The Examiner states that Shah teaches the invention as claimed in claim 1 at column 3 line 51 through 54, and column 4 line 58 through 67 (Office Action, page 3). Applicant respectfully submits that neither cited portion of Shah teaches the invention as described in claim 1. Specifically, neither portion teaches a first thread processing a request by invoking a receive handler that creates a work item, wherein the first thread is part of a pool of generic threads.

Shah makes no mention of a pool of generic threads as defined by the claims. The portion of Shah cited by the Examiner states that “each of the preferred listening threads 52, 53 are identical to one another and actually receive and deal with both requests and replies” (Shah, col. 3, ll. 56-60). While the listening threads are identical, they are not generic threads, nor is there any mention of a pool of generic threads as defined by claim 1. As indicated in Shah, both listening threads are specialized threads and by definition are not generic threads. It is therefore respectfully requested that the Examiner withdraw the rejection and allow claim 1.

Independent claims 38, 49, 58, and 65 contain similar limitations to claim 1, and are therefore allowable for the same reasons given for claim 1. It is therefore requested that the Examiner withdraw the rejection and allow claims 38, 49, 58, and 65.

Claims 2-10, 39-40, 50-52, 55-56, 59, and 66 are all variously dependent on independent claims 1, 38, 49, 58, and 65, and are therefore at least allowable for the reasons given for the independent claim from which they depend. It is therefore requested that the Examiner withdraw the rejection and allow the claims.

The Examiner rejected claims 41-48 under U.S.C. 102(b) as being anticipated by U.S. Patent No 5,901,334 (“Banks”). Applicants respectfully submit that claim 41-48 are patentable over the art of record for the following reasons.

Independent claim 41 recites:

A method in a computer system for servicing requests from multiple client computers, the method comprising:
monitoring a quantity of work being performed by the computer system;

determining whether the quantity has exceeded an upper limit; and
if the quantity has exceeded the upper limit but has not dropped below a lower limit, not accepting new requests into the computer system.

Banks teaches a method for the management of requests for a communication link between local and remote systems (Banks, abstract). An expected time an item will spend on a queue is calculated when an item is received (Id.). If this time exceeds a predetermined upper limit, then the item is rejected and the queue is purged of all remaining items (Id.). An indicator is provided to the sources of the purged items that they were removed from the queue (Id.).

The Examiner states that Banks teaches determining if the quantity has exceeded an upper limit and has dropped below the lower limit, and if the quantity has dropped below the lower limit, accepting the new requests into the computer system (Office Action, page 11). To the contrary, there is no mention of a lower limit in Banks. In the portion of Banks cited by the Examiner, the system checks to see if the queue has exceeded a maximum length, and if so, does not allow new additions to the queue until the queue drops below the maximum length. In contrast, claim 41 requires that after the queue exceeds the maximum length, new additions are not be accepted until the queue falls below a lower limit. Determining if a queue has dropped below a maximum length is not the same as determining if a queue has dropped below a lower limit. It is respectfully requested that the Examiner withdraw the rejection and allow claim 41.

Claims 42-48 are all dependent on claim 41, and are therefore allowable for at least the reasons given for claim 41. It is therefore respectfully requested that the Examiner withdraw rejections and allow claims 42-48.

The Examiner rejected claims 11-12, 14-16, 18-21, 23-25, 53-54, 60 and 67 under 35 U.S.C § 103(a) as being unpatentable over Shah in view of U.S. Patent No. 6,327,607 ("Fant"). Applicants respectfully submit that claims 11-12, 14-16, 18-21, 23-25, 53-54, 60 and 67 are patentable over the art of record for the following reasons.

Fant teaches an invocation architecture for generally concurrent process resolution comprising a plurality of interconnected processors, some of the processors being homogeneous processors and others being special purpose processors (Fant, col. 1, ll. 50-55).

Each homogeneous processor is capable of invoking a connected processor to have the connected processor resolve processes (Id., col. 1, ll. 55-57). Each processor is capable of being invoked by a connected processor to resolve processes. (Id., col. 1, ll. 57-60).

Claims 11-12, 53-54, 60 and 67 are all variously dependent on independent claims 1, 49, and 58, and are therefore allowable for at least the reasons given above for the independent claims with respect to Shah. Fant fails to cure the deficiencies of Shah. It is therefore respectfully requested that the Examiner withdraw the rejection and allow claims 11-12, 53-54, 60 and 67.

Independent claim 14 as amended recites:

A method in a computer system for servicing requests from multiple client computers, the method comprising:
 receiving a request from a client computer to perform a multi-state function;
 performing a first task, by a first work handler invoked by a first thread in a ready state, wherein the first task is associated with a first state of the multi-state function, and performing the first task includes issuing an asynchronous request for data;
 placing the first thread back in the ready state;
 receiving the data specified in the asynchronous request; and
 performing a second task, by a second work handler invoked by a second thread in the ready state, wherein the second task is associated with a second state of the multi-state function, and the second task performs an operation on the data, wherein the first thread and the second thread are all identical generic threads within a pool of generic threads

Neither Fant nor Shah, alone or on in combination, teach the use of a first and second thread where the first and second thread are identical generic threads from a pool of identical generic threads. There is no mention of a pool of identical threads anywhere in either Fant or Shah. It is therefore respectfully requested that the Examiner withdraw the rejection and allow claim 14.

Claims 15, 16, 18-21, and 23-25 are all dependent on claim 14 and are therefore at least allowable for the reasons given for claim 14. It is therefore respectfully requested that the Examiner withdraw the rejections and allow claims 15, 16, 18-21, and 23-25.

The Examiner rejected claim 13 under 35 U.S.C § 103(a) as being unpatentable over Shah in view of U.S. Patent No. 6,085,215 ("Ramakrishnan"). Applicants respectfully submit that claim 13 is patentable over the art of record for the following reasons.

Ramakrishnan teaches a scheduling method and apparatus for use in stations of a communications network (Ramakrishnan, col. 4, ll. 9-12). Processing tasks are divided into processing threads, each of which is structured to execute for a limited time before being subject to preemption by another processing thread (Id., col. 4, ll. 17-20). Each processing thread is given a weight that determines how long that processing thread is allowed to run before giving priority to another thread (Id., col. 4, ll. 33-35).

Claim 13 is dependent on independent claim 1 and is allowable for at least the reasons given for claim 1 with respect to Shah. Ramakrishnan fails to cure the deficiencies of Shah. It is therefore respectfully requested that the Examiner withdraw the rejection and allow claim 13.

The Examiner rejected claims 17, 22, and 26-32 under 35 U.S.C § 103(a) as being unpatentable over Shah in view of Fant, and in further view of U.S. Patent No. 6,219,353 ("Wight"). Applicants respectfully submit that claims 17, 22, and 26-32 are patentable over the art of record for the following reasons.

Wight teaches a message communication system which performs efficient scheduling of access to a data communication medium by a plurality of nodes connected to the medium using simple signals and circuitry (Wight, col. 1, ll. 60-65). The system features a message hub that operates in a scheduling phase and a transmission phase (Id., col. 1, l. 65-col. 2, l. 1). The system schedules the access of each node to a data communication medium without requiring any special scheduling signal (Id., col. 2, ll. 1-3).

Claims 17 and 22 are dependent on independent claim 14 and are therefore allowable for at least the reasons given for the independent claim with respect to Shah and Fant. Wight fails to cure the deficiencies of Shah and Fant. It is therefore respectfully requested that the Examiner withdraw the rejection and allow claims 17 and 22.

Independent claim 26 as amended recites:

A method in a computer system for servicing requests from multiple client computers, the method comprising:
determining that work is available after receiving a request from a client computer, wherein the request from the

client computer is a request to perform a function having multiple states;
when work is available, a first work handler invoked by a first thread looking in a first work queue for a first work item corresponding to the work, wherein the first thread is a generic thread within a pool of generic threads; and
if the first work item is not found in the first work queue, the first work handler looking in a second work queue for the first work item.

Neither Fant nor Shah nor Wight, alone or in combination, teach the use of a generic first thread from a pool of generic threads. There is no mention of a pool of generic threads anywhere in Fant, Shah, or Wight. It is therefore respectfully requested that the Examiner withdraw the rejection and allow claim 26.

Dependent claims 27-32 are all dependent on claim 26 and are therefore allowable for at least the reasons given for claim 26. It is therefore respectfully requested that the Examiner withdraw the rejections and allow claims 27-32.

The Examiner rejected claims 33, 36, 57, 62 and 69 under 35 U.S.C § 103(a) as being unpatentable over Shah in view of U.S. Patent No. 6,026,413 ("Challenger"). Applicants respectfully submit that claims 33, 36, 57, 62 and 69 are patentable over the art of record for the following reasons.

Independent claim 33 as amended recites:

A method in a computer system for servicing requests from multiple client computers, the method comprising:
receiving, from a client computer, a request to perform a first task;
evaluating the first task, by a first handler invoked by a first thread, to determine whether the first task includes complex or long-running logic; and
if the first task includes complex or long-running logic, performing the first task by a second handler invoked by a second thread, wherein the first and second threads are all generic threads within a pool of generic threads.

Challenger teaches systems and methods for determining how changes in underlying data effect the value of objects (Challenger, col. 3, ll. 8-10). The methods include a method for specifying dependencies between objects and underlying data which allows a computer system to propagate updates to all objects in the system after an underlying data change (Id.,

col. 3, ll. 23-27). Another method manages relational objects whereby implicit data dependencies between the relational objects are automatically added by the object manager (Id., col. 3, ll. 60-62).

Neither Shah nor Challenger, alone or on in combination, teach using first and second threads that are generic threads within a pool of generic threads. There is no mention of a pool of generic threads anywhere in Shah or Challenger. It is therefore respectfully requested that the Examiner withdraw the rejection and allow claim 33.

Dependent claim 36 is dependent on claim 33 and is therefore allowable for at least the reasons given for claim 33. It is therefore respectfully requested that the Examiner withdraw the rejections and allow claim 36.

Dependent Claims 57, 62 and 69 are all variously dependent on independent claims 49, 58, and 65 and are therefore allowable for at least the reasons given above for the independent claims with respect to Shah. Challenger fails to cure the deficiencies of Shah. It is respectfully requested that the Examiner withdraw the rejections and allow claims 57, 62, and 69.

The Examiner rejected claims 34, 35, and 37 under 35 U.S.C § 103(a) as being unpatentable over Shah in view of Challenger, in further view of Wight. Applicants respectfully submit that claims 34, 35, and 37 are dependent on independent claim 33 and are therefore allowable for at least the reasons given for claim 33 with respect to Shah and Challenger. Wight fails to cure the deficiencies of Shah and Challenger. It is respectfully requested that the Examiner withdraw the rejection and allow claims 34, 35, and 37.

The Examiner rejected claims 61 and 68 under 35 U.S.C § 103(a) as being unpatentable over Shah in view of Wight. Applicants respectfully submit that claims 61 and 68 are all variously dependent on independent claims 58 and 65 and are therefore allowable for at least the reasons given for claims 58 and 65 with respect to Shah. Wight fails to cure the deficiencies of Shah. It is respectfully requested that the Examiner withdraw the rejection and allow claims 61 and 68.

The Examiner rejected claims 63-64 and 70-71 under 35 U.S.C § 103(a) as being unpatentable over Shah in view of Banks. Applicants respectfully submit that claims 63-64, and 70-71 are all variously dependent on independent claims 58 and 65 and are therefore allowable for at least the reasons given for claims 58 and 65 with respect to Shah. Banks fails

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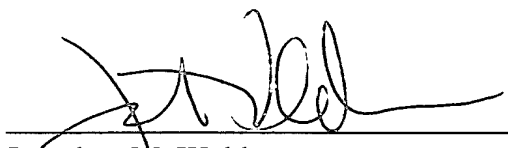
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to cure the deficiencies of Shah. It is respectfully requested that the Examiner withdraw the rejection and allow claims 63-64 and 70-71.

CONCLUSION

In view of the above amendment and remarks, Applicants respectfully submit that the present application is in condition for allowance. Reconsideration of the application and an early Notice of Allowance are respectfully requested.

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Jonathan M. Waldman
Registration No. 40,861

Woodcock Washburn LLP
One Liberty Place - 46th Floor
Philadelphia PA 19103
Telephone: (215) 568-3100
Facsimile: (215) 568-3439